

Cyclone Yaas, May 2021

First Advisory

A deep depression (50-61 kmph) over East-central Bay of Bengal has intensified into Cyclonic Storm Yaas (62-88 kmph) as per the IMD Bulletin on May 24, 2021 at 0830 IST. It is very likely to intensify into a **Severe Cyclonic Storm** (89-117 kmph) in the next 12 hours and further into a **Very Severe Cyclonic Storm** (118-166 kmph) in the next 36 hours. The cyclonic storm is forecasted to move north-north-westwards, crossing north Odisha-West Bengal coasts between Paradip and Sagar on May 26. The VSCS is expected to bring heavy to extreme rainfall to Odisha, West Bengal and southeast Jharkhand.

The Bay of Bengal accounts for only 5% of tropical cyclones globally, but tropical cyclones on the eastern coast of India results in 80% of tropical cyclone-induced fatalities worldwide due to the shallow continental shelf that amplifies storm surges and a very dense population¹. In India, tropical cyclones usually occur in April-May (pre-monsoon season) and October-November (post-monsoon).

In 2020, there were two pre-monsoon cyclones – Amphan (Super Cyclonic Storm) impacting the eastern coast of India, and Nisarga (Severe Cyclonic Storm) impacting the western coast. Cyclone Yaas comes only a week after an Extremely Severe Cyclonic Storm (ESCS) Cyclone Tauktae struck India's west coast, killing 104 people. In addition to the ongoing devastating second wave of Coronavirus, India is witnessing challenges from cyclones also.

¹ Neetu, S., et al. "Premonsoon/postmonsoon Bay of Bengal tropical cyclones intensity: Role of air-sea coupling and large-scale background state." Geophysical Research Letters 46.4 (2019): 2149-2157.

Cyclone Yaas is gearing up to wreak havoc on the eastern coast. The major impact of the cyclonic system is expected across the north-eastern coastal districts of India. Odisha is anticipated to bear the maximum brunt of wind and rainfall with some impact on West Bengal, primarily driven by surge and rainfall-induced floods, particularly in the coastal districts. Additionally, very rough to high seas, squally weather and gale winds around the system centre will affect shipping vessels and fishing operations from May 24-26, 2021.

POTENTIAL IMPACTS

The below table provides a brief overview of the potential rainfall impacts over several Indian States.

Table 1: Forecasted impact² on the States in the next 48 hours - Rainfall

State	24 th May	25 th May	26 th May	27 th May
Andhra Pradesh (North Coastal)	Light to moderate at many places; heavy falls at isolated places	Heavy to very heavy at isolated places	Heavy to very heavy at isolated places	
Odisha	Light to moderate at many places; heavy falls at isolated	Heavy to very heavy rainfall in the north coastal districts; Isolated heavy to very heavy	Heavy to very heavy rains at a few places with extremely heavy falls in Balasore, Bhadrak, Kendrapara, Mayurbhanj heavy to very heavy falls at a	Heavy to very heavy rainfall at isolated places in north interior Odisha

² Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%; Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more

State	24 th May	25 th May	26 th May	27 th May
	places	rainfall is likely over south coastal districts	few places in Jagatsinghpur, Cuttack, Jajpur, Keonjhar	
West Bengal		Light to moderate at many places; heavy to very heavy over Medinipur, South & north 24 Parganas, Howrah and Hooghly districts	Extremely heavy rainfall at isolated places over Jhargram, Medinipur, North & south 24 Parganas, Howrah, Hooghly, Kolkata and heavy to very heavy rainfall at a few places over Nadia, Bardhaman, Bankura, Purulia, Bhirbhum and heavy falls at isolated places over Murshidabad, Malda and Dakshin Dinajpur Districts	Heavy to very heavy rain at isolated places in Malda & Darjeeling, Dinajpur, Kalimpong, Jalpaiguri; heavy rain at a few places over Bankura, Purulia, Bardhaman, Bhirbhum & Murshidabad
Sikkim				Heavy to very heavy rain at isolated places
Jharkhand			Light to moderate at many places; heavy to very heavy rainfall at isolated places; extremely heavy over southeast Jharkhand	Light to moderate at many places; heavy to very heavy rainfall at isolated places; extremely heavy over southeast Jharkhand
Assam & Meghalaya			Light to moderate at many places; heavy to very heavy rainfall at isolated places	Light to moderate at many places; heavy to very heavy rainfall at isolated places

The below table provides a brief overview of the potential wind impacts over several Indian States.

Table 2: Forecasted impact on the States in the next 48 hours - Wind

State	24 th May	25 th May	26 th May	27 th May
Andhra Pradesh (north)	Squally wind (40-50 kmph gusting 60 kmph) near the coast	Squally wind (50-60 kmph gusting to 70 kmph) near the coast		
Odisha	Squally wind (40-50 kmph gusting 60 kmph) near the coast	Squally wind (50-60 kmph gusting to 70 kmph) near the coast	Nearly half of Bhadrak and some parts of Kendrapara will experience gale winds (155 gusting to 180 kmph) 6 hours before landfall; Baleswar will experience gale wind (135-145 gusting to 160 kmph) at landfall	Squally wind (55-65 kmph gusting to 75 kmph)
West Bengal	Squally wind (40-50 kmph gusting 60 kmph) near the coast	Squally wind (50-60 kmph gusting to 70 kmph) near the coast	Gale wind (60-90 kmph gusting to 100 kmph) at landfall	Squally wind (55-65 kmph gusting to 70 kmph)
Jharkhand			Squally wind (40-50 kmph gusting 60 kmph) near the coast	

ANALYSIS

RMSI has analysed potential flood and wind impact due to Cyclone Yaas (based on the IMD bulletin on May 24, 2021 at 0830 hours IST). The following maps depict the potential flood and wind affected areas.

As per the available information, Cyclone Yaas will affect the following districts considerably due to wind hazard: Baleswar, Bhadrak, Cuttack, Jagatsinghpur, Jajpur, Kendrapara, Kendujhar, Mayurbhanj districts of Odisha, East Midnapore, and West Midnapore districts of West Bengal and East Singhbhum district in Jharkhand.

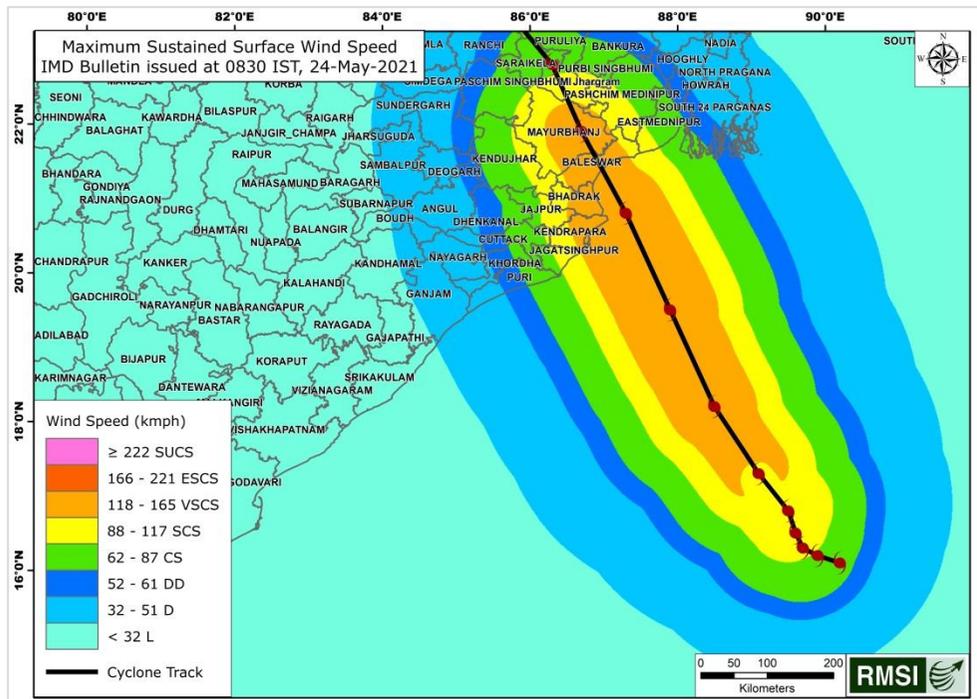


Figure 1: Potential impact due to wind - Cyclone Yaas

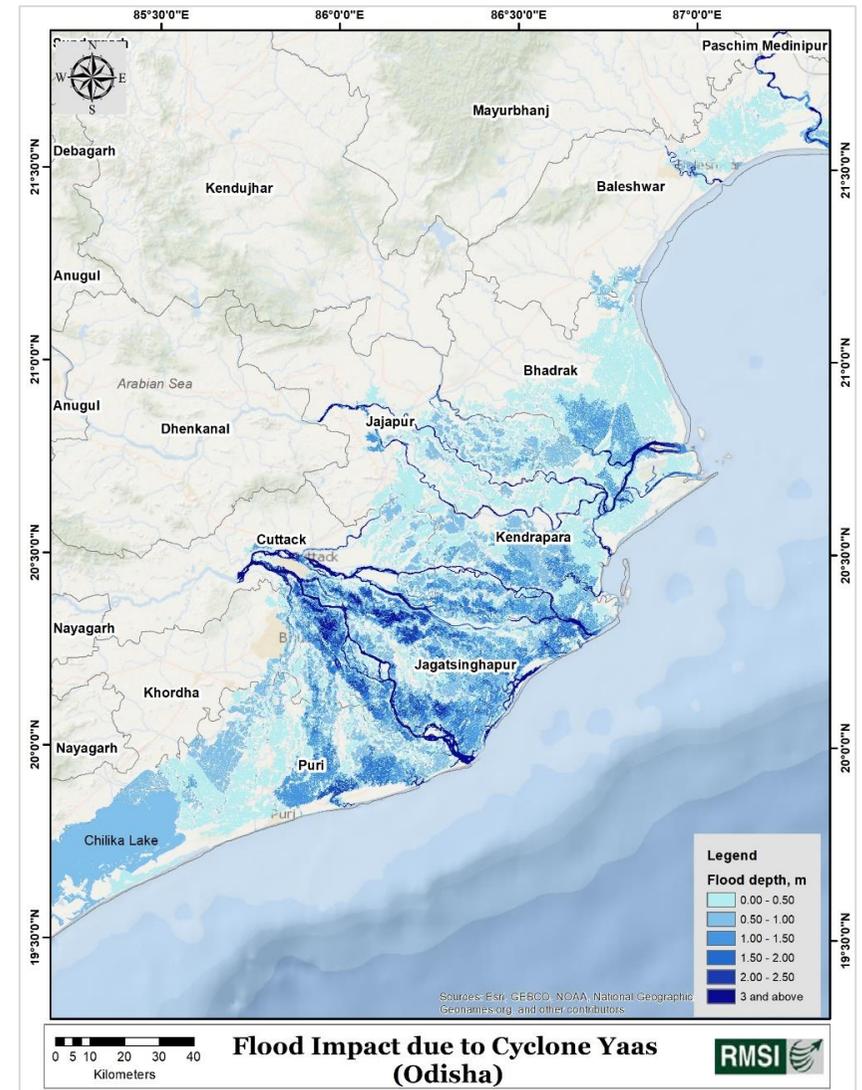


Figure 2: Potential impact due to flood in Odisha - Cyclone Yaas

North 24 Parganas, Murshidabad in West Bengal and Bhadrak, Kendrapara, Jagatsinghpur, Puri and coastal areas of Baleshwar districts of Odisha will potentially be affected by floods due to Cyclone Yaas.

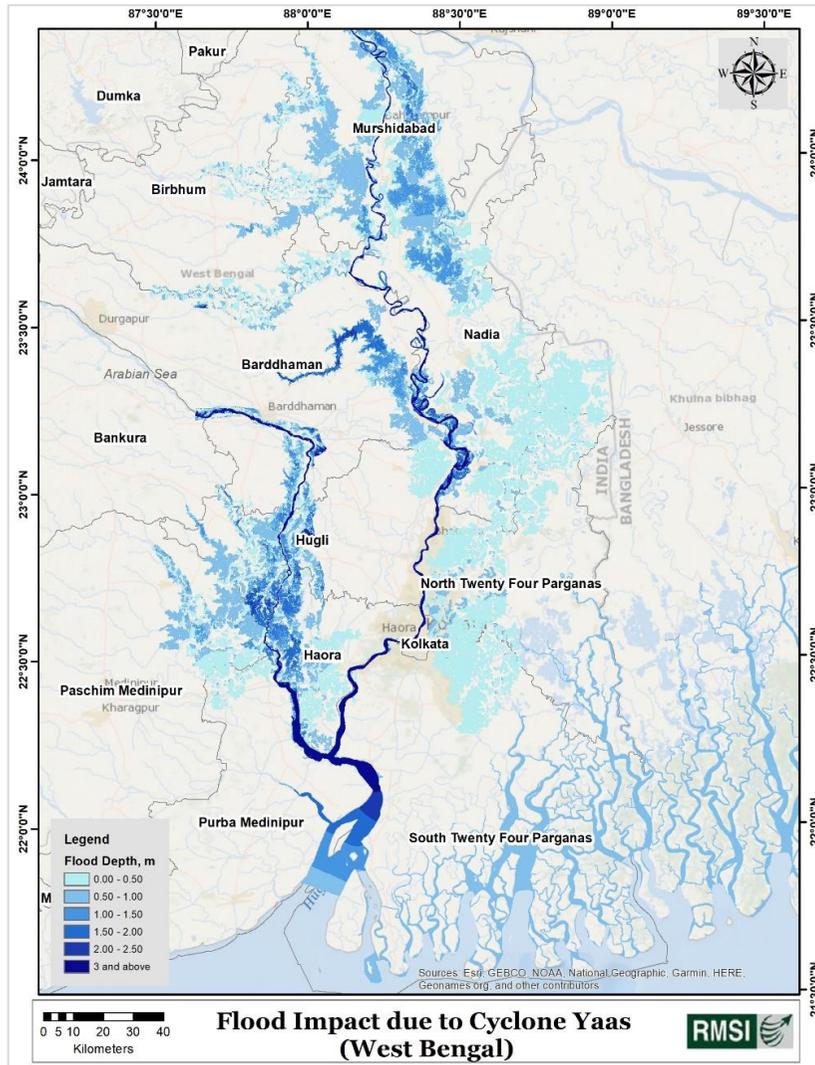


Figure 3: Potential impact due to floods in West Bengal - Cyclone Yaas

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